GMRT

Mini-Breakout Cables (Distribution)
Mobile, Tactical – Indoor/ Outdoor, Heavy Duty
A/I-VQ(ZN)11Y(ZN)11Y

Improved Rodent Protection
2015-02-10 v14.0

Ordering Information

Belden European Part Numbers

Fibre Description / count	2	4	6	12	16	24
62.5/125-OM1	GMRT102	GMRT104	GMRT106	GMRT112	GMRT116	GMRT124
50/125-OM2 BI	GMRT202	GMRT204	GMRT206	GMRT212	GMRT216	GMRT224
50/125-OM3 BI	GMRTD02	GMRTD04	GMRTD06	GMRTD12	GMRTD16	GMRTD24
50/125-OM4 BI	GMRTE02	GMRTE04	GMRTE06	GMRTE12	GMRTE16	GMRTE24
9/125 ITU G.657A1 BI	GMRTA02	GMRTA04	GMRTA06	GMRTA12	GMRTA16	GMRTA24
9/125 ITU G.657A2 BI	GMRTF02	GMRTF04	GMRTF06	GMRTF12	GMRTF16	GMRTF24
9/125 ITU G.657B3 BI	GMRTI02	GMRTI04	GMRTI06	GMRTI12	GMRTI16	GMRTI24
Std. plastic reel (non-returnable)	∅ 500 * 265 mm weight 3.25 kg					
Std. delivery length	2100 ± 105m					

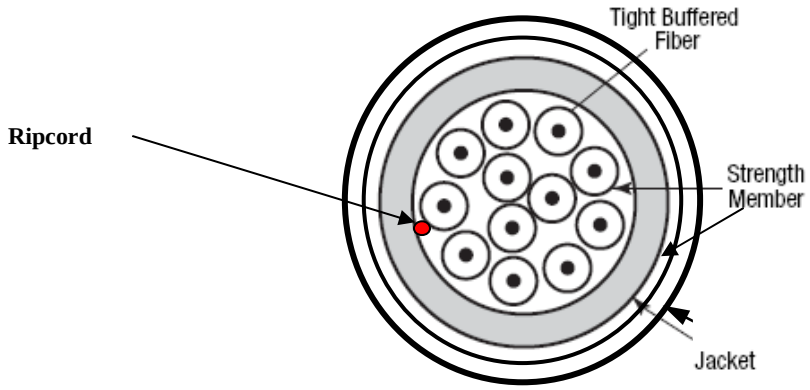
Applications

- These metal-free tactical cables have been designed for de-spooling and re-spooling repeatedly.
- Support computer network applications such as FDDI, Gigabit Ethernet and ATM.
- Easy to install. Not recommended for direct burial.

Features & Benefits

- Extremely strong, rugged, survivable tight-buffered cables for severe environments.
- These cables are halogenfree, flame retardant and watertight and therefore suitable for indoor and outdoor use.
- Helically stranded cable core for flexibility and outstanding mechanical protection for the fibers.
- Core-bonded Polyurethane inner and outer jacket providing simple installation.
- Glass-rovings between inner and outer jacket for improved mechanical strength.
- Predicted lifetime > 30 years.

Construction & Dimensions



Cable Specifications (construction in accordance with IEC 60794)

1. Primary coated optical fibres: Ø 280 ± 15 µm.
2. Tight buffered fibres: Ø 0.9 ± 0.1 mm. Colour coding of the buffered fibres:
   white – red – blue – yellow – green – violet – brown – black – orange– turquoise – pink – grey.
   the secondary coating of fibres 1 – 12 is coloured
   the primary coating of fibres 13 – 24 is coloured (with the same colour sequence) and the secondary coating is transparent. Only 12 core cable contains fibres with coloured primary and coloured secondary coating

No. of fibres	2	4	6	12	16	24
Primary coating of fibres (280 µm)	transparent	transparent	transparent	coloured	coloured	coloured
Secondary coating of fibres (900 µm)	coloured	coloured	coloured	coloured	transparent	transparent

3. Swellable aramid yarns as common strength members and for the longitudinal watertightness.
4. **Black Polyurethane** inner jacket with (polyester) rip cord..
5. Swellable glassyarns as additional **strength members.**
6. **Black Polyurethane** outer jacket.

Identification: BELDEN OFC – HEAVY DUTY TACTICAL CABLE – ”number x type of fibre” +date-, meter- and P/N-marking.

Mechanical Data

No. of fibres	2	4	6	12	16	24
Ø Inner jacket nom. (mm)	5.8	5.8	7.0	8.2	8.3	8.5
Ø Outer jacket nom. (mm)	9.2	9.2	9.9	10.9	11.1	11.3
Max. pulling tension (N)						
Long term	1600	1600	1600	2200	2200	2200
Short term	2400	2400	2400	3300	3300	3300
Energy of flame (kJ/m)	1180	1256	1500	2270	2512	2720
Weight (kg/km)	87	88	99	103	175	200

Optical Characteristics

Characteristics Single-Mode – Matched-Cladded optical fibres according to ITU.

European P/N Coding, Position 5	Fibre-Type	Mode-Field /Cladding Diameter (um)	Wave-length (nm)	Attenuation typical/ max. (dB/km)	Dispersion (ps/(nm-km)	PMD (ps/km)	Cable Cut-off Wave-length (nm)
A	**9/125 G.657A1 BI**	8.9 ± 0.4 124.8 ± 0.3	1310 1550 1625	0.34 / 0.35 0.19 / 0.21 0.20 / 0.24	≤ 3.5 ≤ 18	≤ 0.06	≤ 1260
F	**9/125 G.657A2 BI**	8.9 ± 0.4 124.8 ± 0.3	1310 1550 1625	0.34 / 0.35 0.19 / 0.21 0.20 / 0.24	≤ 3.5 ≤ 18	≤ 0.06	≤ 1260
I	**9/125 G.657B3 BI**	8.8 ± 0.4 125 ± 0.4	1310 1550 1625	0.34 / 0.35 0.19 / 0.21 0.20 / 0.23	≤ 3.5 ≤ 18	≤ 0.06	≤ 1260

Note A- Link design value

Characteristics Multi-Mode Graded-Index optical fibres according to IEC 60793

European P/N Coding, Position 5	Fibre-Type	Core/ Cladding Diameter (um)	Wave-length (nm)	Attenuation typical/ max. (dB/km)	Bandwidth (MHz•km)	Ethernet Performance (m)		Num. Apert. (µm)
						1 GBE	10 GBE	
1	**62.5/125 OM1**	62.5 ± 2.5 125 ± 1	850 1300	2.7 / 3.0 0.7 / 0.8	≥ 200 ≥ 600	220 550	33 300	0.275 ± 0.015
2	**50/125 OM2 BI**	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 500 ≥ 500	600 600	83 300	0.20 ± 0.015
D	**50/125 OM3 BI**	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 1500 ≥ 500	1000 550	300 300	0.20 ± 0.015
E	**50/125 OM4 BI**	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 3500 ≥ 500	1100 550	550 300	0.20 ± 0.015

Macro Bending Performance Fibers

Maximum attenuation increase for Bend Insensitive Single Mode fibers in dB depending on turns and radius.

European P/N Coding, Position 5	Fibre-Type	Wave-length (nm)	Turns 100 Radius 25 mm (dB)	Turns 10 Radius 15 mm (dB)	Turn 1 Radius 10 mm (dB)	Turn 1 Radius 7.5 mm (dB)	Turn 1 Radius 5 mm (dB))
A	9/125 G.657A1	1550 1625	0.01 0.05	0.2 0.5	0.2 0.5		
F	9/125 G.657A2	1550 1625		0.03 0.1	0.1 0.2	0.5 1.0	
I	9/125 G.657B3	1550 1625			0.03 0.10	0.08 0.25	0.15 0.45

Maximum attenuation increase for Bend Insensitive Multi Mode fibers in dB depending on turns and radius.

European P/N Coding, Position 5	Fibre-Type	Wave-length (nm)	Turns 100 Radius 37.5 mm (dB)	Turns 2 Radius 15 mm (dB))	Turns 2 Radius 7.5 mm (dB)
1	62.5/125 OM1	850 1300	0.5 0.5		
2	50/125 OM2 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5
D	50/125 OM3 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5
E	50/125 OM4 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5

Mechanical, Physical and/or Environmental Characteristics

Requirements		
Temperature range according to IEC 60794-1-22-F1 Transport/storage Installation Operation		 -70 to + 85 ˚C -5 to + 50 ˚C -55 to + 85 ˚C
Pulling tension according to IEC 60794-1-21-E1		See table with dimensions
Bending radii for fibres Installation/operation (all fiber): Only for G657A: Only for OM3 Flex and OM4 Flex:		 >25 mm Max. increase 0.02 dB/turn @1550nm with 32 mm Max. increase 0.20 dB/turn @1550nm with 20 mm Max. increase 0.20 dB/turn @850nm with 7.5 mm Max. increase 0.50 dB/turn @1300nm with 7.5 mm
Strippability Secondary coating only Secondary + primary coating		 ≤ 10 cm ≤ 10 mm
Watertightness according to IEC 60794-1-22-F5		Yes
Crush resistance according to IEC 60794-1-21-E3 Tight buffer Cable		 ≤ 4000 N/ m ≤ 50 kN/ m
Bending radii cable Static according to IEC 60794-1-21-E11 Dynamic according to IEC 60794-1-21-E6	 15 x Ø 20 x Ø	 Only for G657A, OM3 Flex, OM4 Flex fiber: 4 x Ø 8 x Ø
Repeated bending according to IEC 60794-1-21-E6		> 700.000 times

Safety

	Testing standard	Description / Value
Reaction to fire	IEC 60332-1	
Halogen acid gas content	IEC 60754-1	Zero
Degree of acidity of gases	IEC 60754-2 IEC 60754-2	Min. 4.3 pH Max. 10 µS/mm

Guide to installation and handling

- When laying and installing optical fibre cables **it is vitally important not to exceed the specified values** set for pulling tension, bending radii and temperature. The installation methods have to be in accordance with the common standards.
- If a cable needs to be fastened, constrictions ≥ 0.3 mm must be prevented.
- It is advisable to cap the cable-ends during storage.

Options

- Non-standard cable constructions with different colours, details and/or additional information regarding specifications are available on request.